## Claims

What is claimed is:

1. Apparatus for forming a dye sublimation image in a first surface of a substrate with a dye carrier having an image formed thereon of a sublimatic dyestuff, the apparatus comprising:

a conveyor for moving the substrate and dye carrier along a path with a first part and a second part;

a continuous pressure system for pressing the image formed on the dye carrier against the first surface of the substrate, wherein the continuous pressure system applies a continuous pressure against the first surface of the substrate in the first part and second part of the path and therebetween;

a heater for heating the dye carrier to a sublimation temperature when the substrate and dye carrier are in the first part of the path; and

a cooler for cooling the dye carrier to a depressure temperature when the substrate and dye carrier are in the second part of the path, wherein the continuous pressure is continuously applied from before the heating until after the dye carrier is cooled.

2. The apparatus, as recited in claim 1, wherein the conveyor comprises:

an upper conveyor belt; and

a lower conveyor belt.

3. The apparatus, as recited in claim 2, wherein the upper conveyor belt and the lower conveyor belt move synchronously.

4. The apparatus, as recited in claim 1, wherein the continuous pressure system provides a pressure between 5-50 pounds per square inch for every point on the first surface of the substrate to which the image will be sublimated.

5. The apparatus, as recited in claim 1, wherein the continuous pressure system provides a pressure between 9-20 pounds per square inch for every point on the first surface of the substrate to which the image will be sublimated.

6. The apparatus, as recited in claim 1, wherein the continuous pressure system limits shrinking, enlarging, extruding, and warping of the substrate during the heating and cooling.

7. The apparatus, as recited in claim 1, wherein the continuous pressure system limits shrinking, enlarging, extruding, and warping of the substrate in all directions during heating and cooling and wherein the cooler is a passive cooling system.

8. The apparatus, as recited in claim 1, wherein the sublimation temperature is a temperature above the glass transition temperature.

9. The apparatus, as recited in claim 8, wherein the depressure temperature is a temperature below the glass transition temperature.

10. The apparatus, as recited in claim 1, wherein the continuous pressure system uses a gas pressure differential to provide the continuous pressure.

11. A method for forming a dye sublimation image in a substrate with a dye carrier having an image formed thereon of a sublimatic dyestuff, the method comprising:

placing the image of the dye carrier against a first surface of the substrate;

conveying the substrate and dye carrier along a path with a first part and a second part;

providing a continuous pressure against the first surface of the substrate in the first part and second part of the path and therebetween;

heating the dye carrier to a sublimation temperature in the first part of the path; and

cooling the dye carrier to a depressure temperature in the second part of the path.

12. The method, as recited in claim 11, wherein the continuous pressure provides a pressure between 5-50 pounds per square inch for every point on the first surface of the substrate to which the image will be sublimated.

13. The method, as recited in claim 11, wherein the continuous pressure provides a pressure between 9-20 pounds per square inch for every point on the first surface of the substrate to which the image will be sublimated.

14. The method, as recited in claim 11, wherein the continuous pressure limits shrinking, enlarging, extruding, and warping of the substrate during the heating and cooling.

15. The method, as recited in claim 11, wherein the continuous pressure limits shrinking, enlarging, extruding, and warping of the substrate in all directions during heating and cooling.

16. The method, as recited in claim 11, wherein the sublimation temperature is a temperature above the glass transition temperature.

17. The method, as recited in claim 16, wherein the depressure temperature is a temperature below the glass transition temperature.

18. The method, as recited in claim 11, wherein the continuous pressure is provided by a gas pressure differential to provide the continuous pressure.

19. A method of forming a formed object with a sublimated image, comprising:

providing a dye carrier with an image;

placing the image of the dye carrier against a first surface of a substrate;

heating the dye carrier to a temperature above a glass transition temperature of the substrate, while in a continuous process machine;

cooling the dye carrier to a temperature below the glass transition temperature of the substrate, while in the continuous process machine;

removing the dye carrier from the substrate, wherein the image has been sublimated into the first surface of the substrate;

heating the substrate;

thermal forming the substrate into the formed object; and

cooling the formed object.

20. The method, as recited in claim 19, wherein the molding of the substrate provides a greater than 40% elongation in a region of the substrate, and wherein the sublimated image is not thinned.

21. The method, as recited in claim 19, wherein the providing the dye carrier with an image, comprises printing the image on the dye carrier using an ink jet printer.

22. The method, as recited in claim 19, wherein the providing continuous pressure limits shrinking, enlarging, extruding, and warping of the substrate in a plurality of directions during the steps of heating the dye carrier and cooling the dye carrier.

23. The method, as recited in claim 19, wherein the heating the substrate heats the substrate to a temperature of at least 275° C.

24. A method of providing a sublimated image on a plastic substrate, comprising:

selecting a digital image on a computer;

using a computer printer to print the selected digital image on a dye carrier with dye sublimation inks;

placing the image of the dye carrier against a first surface of a substrate;

heating the dye carrier to a temperature above a glass transition temperature of the substrate, while in a continuous process machine;

cooling the dye carrier to a temperature below the glass transition temperature of the substrate, while in the continuous process machine; and

removing the dye carrier from the substrate, wherein the image has been sublimated into the first surface of the substrate.

25. The method, as recited in claim 24, wherein the substrate is a substrate film.

26. The method, as recited in claim 25, further comprising laminating the substrate film to a thicker substrate.

27. The method, as recited in claim 24, further comprising providing a continuous pressure between 5-50 pounds per square inch for every point on the first surface of the substrate to which the image will be sublimated from before the heating until after the cooling.

28. The method, as recited in claim 24, further comprising providing a continuous pressure between 9-20 pounds per square inch for every point on the first surface of the substrate to which the image will be sublimated from before the heating until after the cooling.

29. The method, as recited in claim 24, wherein the continuous pressure limits shrinking, enlarging, extruding, and warping of the substrate during the heating and cooling.

30. The method, as recited in claim 24, wherein the continuous pressure is provided by a gas pressure differential to provide the continuous pressure.

31. A method of forming a sublimated image in a laminated substrate, comprising:

provide a film with an image on a first side of the film;

laminating the first side of the film to a substrate; and

sublimating the image into the substrate.

32. The method, as recited in claim 31, wherein the providing the film with an image, comprises:

placing the film in a printer; and

printing the image on the first side of the film.

33. The method, as recited in claim 32, wherein the providing the film with an image, further comprises:

selecting a digital image on a computer; and

sending a command to the printer to print the digital image.

34. The method, as recited in claim 33, wherein the selecting the digital image, comprises customizing the digital image.

35. The method, as recited in claim 33, further comprising thermal forming the film and substrate.

36. The method, as recited in claim 31, wherein the laminating the first side of the film to a substrate and the sublimating the image into the substrate are performed simultaneously.

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37. A laminated substrate with sublimated image formed by the method, comprising:

provide a film with an image on a first side of the film;

laminating the first side of the film to a substrate; and

sublimating the image into the substrate.

38. The laminated substrate, as recited in claim 37, wherein the providing the film with an image, comprises:

placing the film in a printer; and

printing the image on the first side of the film.

39. The laminated substrate, as recited in claim 38, wherein the providing the film with an image, further comprises:

selecting a digital image on a computer; and

sending a command to the printer to print the digital image.

40. The laminated substrate, as recited in claim 39, wherein the selecting the digital image, comprises customizing the digital image.

41. The laminated substrate, as recited in claim 39, further comprising thermal forming the film and substrate.

42. The laminated substrate, as recited in claim 37, wherein the laminating the first side of the film to a substrate and the sublimating the image into the substrate are performed simultaneously.